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Cindy S. Emmons
Director, Environmental Affairs

**Kennecott**

May 1, 1991

Allan Shepherd
State of Utah Dept. of Natural Resources
Division of Oil, Gas and Mining
Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Dear Mr. Shepherd:

Attached is information on the "tin can" story to help you set the record straight.

Please call me if you need additional information.

Sincerely,

Cindy S. Emmons
Director, Environmental Affairs

CS.

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SENT BY HEADQUARTERS

; 5- 1-91 ; 2:25PM ;

KENNECOTT CORP. →

801 250 6723;# 2/ 4

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Gregory H. Boyce
Director, Government
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Kennecott

To The Editor
San Jose Mercury News
April 1, 1991

Recent news articles have been published in California regarding Kennecott's usage of recycled cans in the leaching process at our Bingham Canyon Mine in Utah. Several allegations were made about the creation of hazardous waste that are erroneous. The following description of the copper leaching process is provided as clarification to inaccuracies in the articles. Two critical points to be made first are:

No hazardous wastes are produced during the leaching process and no leach dumps have been abandoned with hazardous wastes on top. No State or Federal environmental agency has classified any of the leaching products as a hazardous waste.

From a recycling standpoint, the use of detinned cans and iron scrap in the copper production process is one of the best examples of total recycling. Iron is produced by mining and made into tin cans and other steel products beneficial to society. Once the primary uses of the iron are complete, the iron scrap is used to produce copper. The copper is also a vital and beneficial metal for society. The iron is returned to its natural form in a mining environment. The cycle is complete, from mine to mine, without having to discard the iron in landfills across the country.

Kennecott has been producing copper at Bingham Canyon by the leaching process since the 1930's. The copper leaching process enables Kennecott and other mining companies to recover copper from very low grade rock. Without the use of leaching technology, valuable copper would be left, unrecovered in the overburden stockpiles associated with all Western U.S. copper operations.

The copper leaching process is simple, environmentally safe, and at Bingham Canyon produces approximately 6,500 tons of copper per year. Major steps in the leaching process are:

Leaching:

Mined rock containing low grade quantities of copper is stockpiled in selected locations adjacent to the open pit mine. Leaching solutions are distributed across the top of the stockpiles by sprinklers and ponding. As the leaching solutions percolate down through the stockpile, the copper is "leached" or removed from the rock and goes into solution.

Precipitation:

All of the copper-laden leaching solutions are collected at the base of the stockpiles and transported via concrete ditches and pipelines to the copper precipitation plant.

At the precipitation plant there are a series of cones or tanks which are filled with de-tinned shredded iron scrap. The copper-laden leaching solutions are pumped into the cones and mixed with the iron scrap. Through a chemical exchange process, the iron dissolves and goes into solution replacing the copper, which precipitates out of solution into a solid mud-like form. This copper mud is called copper precipitate and typically assays 80% copper.

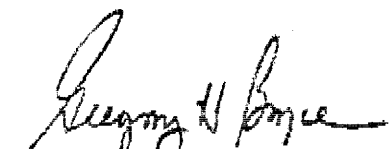
The leach solutions leave the cones barren of copper and enriched with iron. All leaching solutions are recycled and pumped back up to the stockpiled rock to begin the process again.

Pertinent facts about the leaching and precipitation process are:

- No sulfuric acid is used in the process. The leach solutions are mildly acidic, but this is a result of the natural leaching chemical reaction, not a result of sulfuric acid use.
- All iron scrap used in the precipitation cones is tin cans and other recycled iron which is "de-tinned" and shredded by the recycler prior to delivery to Kennecott.
- All detinned, shredded iron scrap is delivered to Kennecott by railroad.
- The iron which goes into solution in the precipitation cones is carried in solution onto the stockpiles. The iron is deposited both on the surface and interior of the stockpile in a stable, inert form, similar to rust.
- For every three pounds of iron consumed in the process, one pound of copper is produced.
- No iron is "melted." All of the iron is dissolved or consumed within the precipitation cones.

pH
2-3 is
mild ??!

We'd hate to see San Jose residents' recycling efforts diminished in any way because of the inaccuracies of a single newspaper article.


Gregory H. Boyce, Director
Government and Public Affairs
Kennecott Corporation

• The Salt Lake Tribune, Wednesday, April 3, 1991 37

Can-Recycling Charge Holds No Water, Kennecott Says

By Jim Woolf
Tribune Staff Writer

A spokesman for Kennecott said Tuesday he was "astonished" by a front-page story in a California newspaper raising questions about the use of recycled tin cans in one of the Utah company's copper-extraction processes.

Gregory H. Boyce, director of government and public affairs for Kennecott, said the process is environmentally sound and has been used since the 1930s.

The *San Jose Mercury News* ran a front-page story on March 30 under a headline that read: "S.J. [San Jose] Tin Cans Recycled Into Hazard. Utah Mine Uses Metal To Make Toxic Spray."

The story said northern Californians were surprised to discover that the used tin cans they save for recycling are being sold to a middleman who sells the shredded metal to Kennecott.

"To produce a few pounds of copper, hundreds of tons of cans collected throughout the Bay Area are consumed in a sulfuric acid solution. The throw-away cans stay out of local dumps, but sit forever as hazardous waste in a 10-square-mile gash in the Utah earth," according to the story.

Mr. Boyce said the story is wrong. Waste from the processed cans is an iron oxide that is very similar to iron ore. It is not considered hazardous by federal environmental health officials.

"We believe this is one of the best recycling schemes you can have," said

the company spokesman. "You mine iron ore, produce a tin can, put it to a beneficial use, it gets consumed, you throw the can away, the recyclers pick it up, they sell it to us, we use it to produce copper, and the iron left over is returned to a mine environment."

Bill Heenan, president of the Steel Can Recycling Institute in Pittsburgh, defended Kennecott's use of the cans. "What this offers is a very viable market for used cans. It's a way of saving virgin material," he said.

What the consumer calls a "tin can" is known in the packaging industry as a steel can. The average can contains only one percent of one percent tin. The rest is steel. Only one in five steel cans are being recycled today in America, said Mr. Heenan.

Mr. Boyce said the shredded cans are placed in a vat and mixed with a naturally acidic water that has picked up copper as it seeped through the giant piles of low-grade ore, or overburden, stacked around the mouth of Kennecott's Bingham Canyon mine.

The acidic water dissolves the steel and triggers a chemical reaction in which the copper settles out of the water. The iron-rich water is then pumped to the top of the pile and allowed to seep through the overburden again.

Mr. Boyce said some of the iron in this water comes out of solution and forms a rusty stain on the pile. This iron stain is stable and has not been linked to any environmental problems.